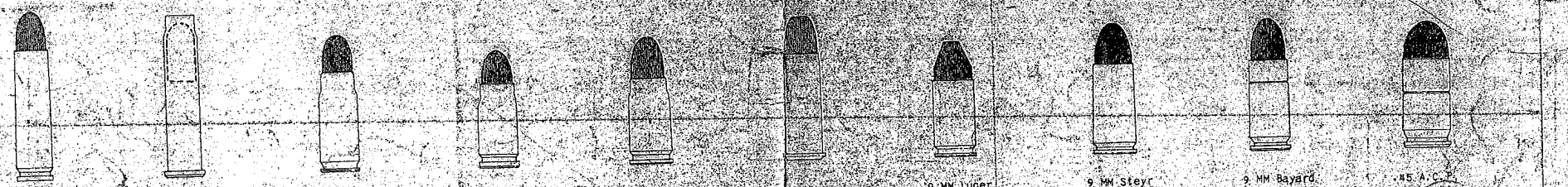
Wm. Crehan

APPENDIX A
AMMUNITION CHART
OF WORLD MILITARY CARTRIDGES

SOURCE: AUTOMATIC ARMS
by M.M. JOHNSON & C.T. HAVEN
WM. MORROW & CO. - NEW YORK



U.S. .30-S.R. M1	7.5 MM Nagant Revolver	7.63 Mauser Auto Pistol	7.65 MM Luger Auto Pistol	8 MM Nambu Auto Pistol	8 MM Lebel Revolver	9 MM Luger Auto Pistol	9 MM Steyr Auto Pistol	9 MM Bayard Auto Pistol	.45 A.C.P.
B.D.-R.N.-G.M.J.-H.B.	B.D.-F.N.-L.-F.B.	B.D.-R.N.-C.N.J.-F.B.	B.D.-R.N.-C.N.J.-F.B.	B.D.-R.N.-C.N.J.-F.B.	B.D.-F.N.-C.N.J.-F.B.	B.D.-F.N.-C.N.J.-F.B.	B.D.-R.N.-S.J.-F.B.	B.D.-R.N.-C.N.J.-F.B.	B.D.-R.H.-G.M.J.-F.B.
B.W. 110	B.W. 108	B.W. 85	B.W. 93	B.W. 102	B.W. 120	B.W. 126	B.W. 116	B.W. 126	B.W. 230
P.W. 11.1	P.W. 5	P.W. 7	P.W. 5.9	P.W.	P.W. 14.5	P.W. 5.5	P.W. 6.2	P.W. 5.6	P.W. 5
C.T. ..... S.-R.	C.T. ..... S.-R.	C.T. ..... B.N.-R.L.	C.T. ..... B.N.-R.L.	C.T. ..... B.N.-R.L.	C.T. ..... S.-R.	C.T. ..... S.-R.L.	C.T. ..... S.-R.L.	C.T. ..... S.-R.L.	C.T. ..... B.-R.L.
T.W. 194.2	T.W. ..... —	T.W. ..... —	T.W. ..... —	T.W. ..... —	T.W. ..... —	T.W. ..... —	T.W. ..... —	T.W. ..... —	T.W. 325
C.P. 44,000	C.P. ..... —	C.P. ..... —	C.P. ..... —	C.P. ..... —	C.P. 625	C.P. 23,000	C.P. ..... —	C.P. ..... —	C.P. 12,000
M.V. 1,780	M.V. 725	M.V. 1,300	M.V. 1,200	M.V. ..... —	M.V. 1041	M.V. 1,075	M.V. 1,200	M.V. 1,148	M.V. 800
M.E. 775	M.E. 122	M.E. 329	M.E. 300	M.E. ..... —	M.E. ..... —	M.E. 320	M.E. 370	M.E. 365	M.E. 329
M.A. ..... —	M.A. ..... —	M.A. ..... —	M.A. ..... —	M.A. ..... —	M.A. ..... —	M.A. ..... —	M.A. ..... —	M.A. ..... —	M.A. ..... —
United States	Russia Norway	Germany ETC.	Germany Etc.	Japan	France	Germany ETC.	Austria Hungary	Belgium Denmark	United States British Empire

CARTRIDGE DEVELOPMENT

The development of military small arms cartridges of modern type began over fifty years ago. Their general characteristics include a bottlenecked case, either rimmed, or more generally, rimless, a metal jacketed bullet between 25 and 32 caliber, 130 to 230 grains in weight, round nose or pointed, and a charge of smokeless powder giving a muzzle velocity between two and three thousand feet per second. Chamber pressures run between thirty and fifty thousand pounds per square inch.

The elements of this type of cartridge began to appear in the late 1870's. Smokeless powder was gradually developed from the experiments with nitro glycerin and gun cotton (Nitro-cellulose) begun in Europe shortly after 1840. The invention of the metal jacketed bullet is usually credited to Switzerland about 1880.

The first cartridge of the modern type issued as standard by a major power was the 8mm Lebel which was adopted by the French Government in 1886 and has been in use since then with very little change except for modernization of the bullet and powder.

The military powers of the world generally changed to bolt action, box magazine, small caliber

(continued on next page)

KEY TO ABBREVIATIONS

B.A. — Bronze Alloy.
B.D. — Bullet Description.
B.N. — Bottle Necked.
B.T. — Boat Tailed.
B.W. — Bullet Weight (in Grains).
C.J. — Copper Jacket.
C.N.J. — Cupro Nickel Jacket.
C.S.P. — Chamber Pressure (inches per Sq. Inch).
C.T. — Case Type.
F.B. — Flat Base.
F.N. — Flat Nosed.
G.M.J. — Gliding Metal Jacket.
H.B. — Hollow Base.
L. — Lead.
M.A. — Maximum Accuracy Range (in yards).
M.E. — Muzzle Energy (in foot pounds).
M.V. — Muzzle Velocity (in feet per second).
P. — Pointed.
P.W. — Powder Weight (in Grains).
R. — Rimmed.
R.L. — Rimless.
R.N. — Round Nosed.
S. — Straight.
S.J. — Steel Jacket.
S.P. — Semi-Pointed.
T.W. — Total Weight of Cartridge (in Grains).

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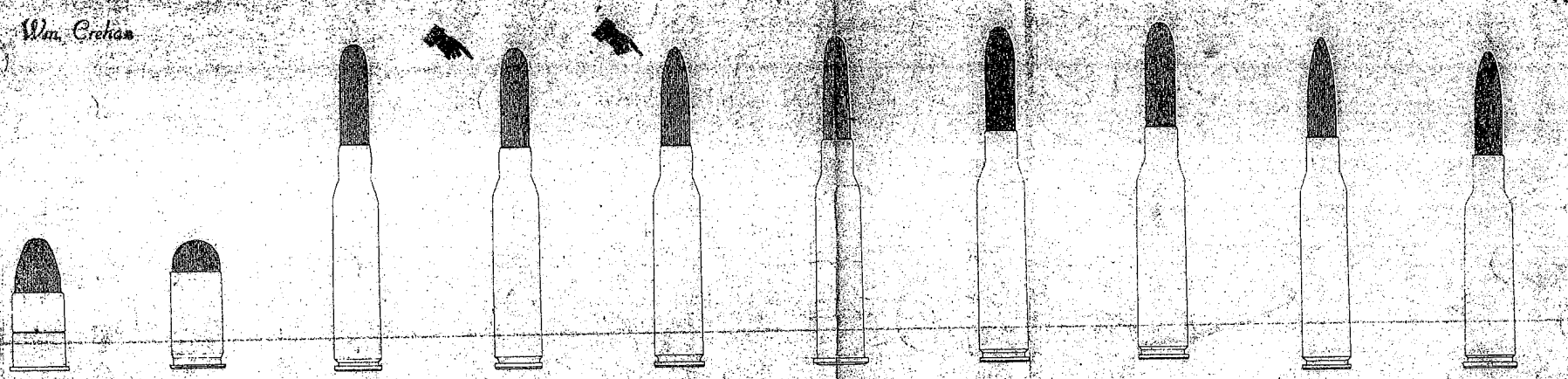

.455 M II Webley Revolver	.455 Webley Auto Pistol	6.5 MM Mannlicher	6.5 MM Mannlicher Carcano	6.5 MM Mannlicher Carcano	6 MM Mannlicher	6.5 MM Mauser	6.5 MM Mauser-Vergueiro	6.5 MM Krag-Jorgenson	6.5 MM Arisaka
B.D.—P.-L.-M.B.	B.D.-R.N.-C.N.J.-F.B.	B.D.-R.N.-S.J.-F.B.	B.D.-R.N.-C.N.J.-H.B.	B.D.—P.-C.N.J.-F.B.	B.D.—R.N.-S.J.-F.B.	B.D.-R.N.-C.N.J.-F.B.	B.D.-R.N.-C.N.J.-F.B.	B.D.—P.-C.N.J.-F.B.	B.D.—P.-C.N.J.-F.B.
B.W. 265	B.W. 220	B.W. 159	B.W. 161.8	B.W. 123	B.W. 159	B.W. 156.8	B.W. 155.3	B.W. 156.4	B.W. 139
P.W. 7	P.W. 7	P.W. 36	P.W. 34	P.W. ..... —	P.W. 38	P.W. ..... —	P.W. 37.7	P.W. 36.0	P.W. 33
C.T. .....S.-R.	C.T. .....S.-S.R.	C.T. .....B.N.-R.L.	C.T. .....B.N.-R.L.	C.T. .....B.N.-R.L.	C.T. .....B.N.-R.L.	C.T. .....B.N.-R.L.	C.T. .....B.N.-R.L.	C.T. .....B.N.-R.L.	C.T. .....B.N.-S.R.
T.W. ..... —	T.W. ..... —	T.W. 348	T.W. 350	T.W. 320	T.W. 348	T.W. 345	T.W. 371.8	T.W. 372	T.W. 326
C.P. ..... —	C.P. ..... —	C.P. 40.300	C.P. ..... —	C.P. ..... —	C.P. ..... —	C.P. ..... —	C.P. ..... —	C.P. ..... —	C.P. ..... —
M.V. 600	M.V. 750	M.V. 2.223	M.V. 2.296	M.V. 2.450	M.V. 2.433	M.V. 2.395	M.V. 2.347	M.V. 2.460	M.V. 2.500
M.E. 220	M.E. 270	M.E. 1.900	M.E. 1.925	M.E. 1.850	M.E. 2.050	M.E. 2.000	M.E. 2.000	M.E. 2.050	M.E. 1.950
M.A. ..... —	M.A. ..... —	M.A. 800-1.000	M.A. 800-1.000	M.A. 800-1.000	M.A. 800-1.000	M.A. 800-1.000	M.A. 800-1.000	M.A. 800-1.000	M.A. 800-1.000
British Empire	British Navy	Greece	Italy	Italy	Holland Rumania	Sweden Luxemburg	Portugal	Norway	Japan

repeating rifles, employing modern type cartridges, between 1888 and 1895.

The two commonest actions are the Mannlicher, using both a straight pull and a turning bolt, and the Mauser, using a turning bolt. The Krag Jorgenson, Mosin-Nagant, Schmidt-Rubin, and Lebel show individual features but are of the same general type. Rimless cases operate best in such arms and are the most modern type cases but many nations have never changed from the original rimmed cases adopted before the rimless ones appeared about 1895. In most countries but little change has been made in either military rifles or cartridge cases since their original adoption.

Machine guns of rifle caliber require no special design of cartridge and usually are chambered for the same cartridge as the rifles of the powers which use them.

The .50 caliber machine gun, although larger, generally utilizes cartridges of the same form as military rifle cartridges. This caliber was developed from the German anti-tank rifle cartridges of the first world war, which were also of regular rifle type.

The latest development in infantry rifles, the semi-automatic rifle, should occasion no change in design in the rimless cartridges of the present day as the magazine and feeding arrangements should not require cartridges differing in form from those used in the present bolt action arms, and such arms will be rugged enough to handle any of the present military cartridges.

The loads of military rifle cartridges have been improved from time to time. The tendency was first to change the bullet from a round nose, flat base missile to one with a pointed nose and to reduce the weight about 20%, increasing the velocity correspondingly. This was done in a number of countries between 1903 and 1914; some nations using both the earlier and later types for different purposes at the same time.

Another change, and one that is still going on, is to increase the weight of the bullet about 15% without changing its forward section by lengthening the rear and giving it a streamlined or "boat-tailed" base. Germany is understood to have done this very recently with the 7.9mm Mauser cartridge, and Mexico and a number of the South American countries are working along similar lines with the 7mm Mauser.

Mauser and Mannlicher cartridges of 6.5mm and 7mm are perhaps the types in commonest use in the world today. In the different countries, the rifle models vary slightly and the cartridges do not all have the same ballistic qualities. Some of the

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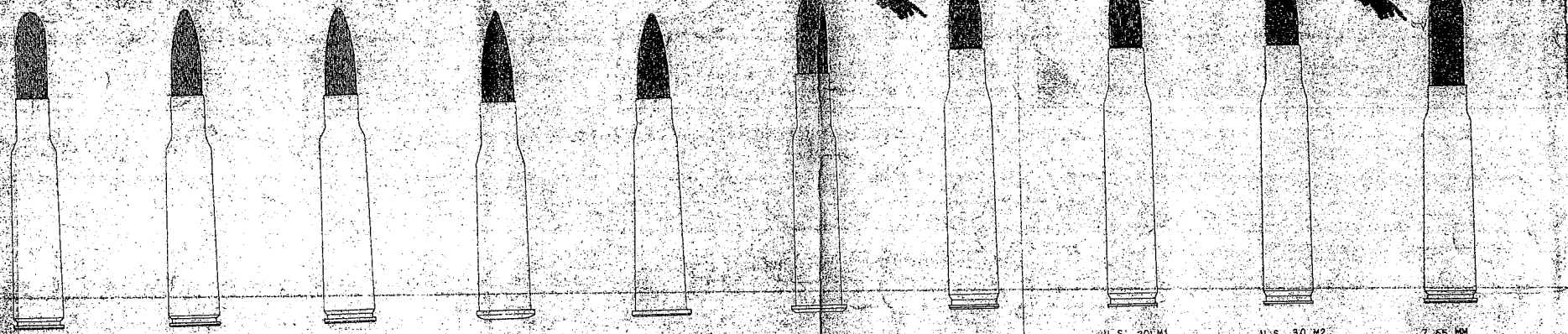

7 MM Mauser		7 MM Mauser		7.62 MM Schmidt-Rubin		7.62 MM Mosin-Nagant		7.62 Mauser		30 Krag-Jorgenson		U.S. 30-06		U.S. 30 M1		U.S. 30 M2		7.65 MM Mauser	
B.D.- R.N.-C.N.J.-F.B.		B.D.- P.-C.N.J.-F.B.		B.D.- P.-S.J.-B.T.		B.D.- P.-C.N.J.-H.B.		B.D.- P.-C.N.J.-H.B.		B.D.- R.N.-C.N.J.-F.B.		B.D.- P.-C.N.J.-F.B.		B.D.- P.-G.M.J.-B.T.		B.D. P.-C.N.J.-F.B.		B.D.-R.N.-C.N.J.-H.B.	
B.W.	172	B.W.	140-160	B.W.	174	B.W.	148	B.W.	148	B.W.	220	B.W.	150	B.W.	174.5	B.W	150	B.W.	215
P.W.	88.3	P.W.	—	P.W.	49.3	P.W.	50	P.W.	—	P.W.	40	P.W.	50	P.W.	50	P.W.	—	P.W.	42.5
C.T.	B.N.-R.L.	C.T.	B.N.-R.L.	C.T.	B.N.-R.L.	C.T.	B.N.-R.	C.T.	B.N.-R.	C.T.	B.N.-R.	C.T.	B.N.-R.L.	C.T.	B.N.-R.L.	C.T.	B.N.-R.L.	C.T.	B.N.-R.L.
T.W.	344	T.W.	345-366	T.W.	404	T.W.	348	T.W.	—	T.W.	—	T.W.	395	T.W.	415	T.W.	395	T.W.	441
C.P.	45,000	C.P.	34,000	C.P.	—	C.P.	—	C.P.	—	C.P.	42,500	C.P.	52,000	C.P.	48,000	C.P.	38,000	C.P.	39,400
M.V.	2,296	M.V.	2,750-2,900	M.V.	2,720	M.V.	2,830	M.V.	2,830	M.V.	2,000	M.V.	2,700	M.V.	2,650	M.V.	2,700	M.V.	2,034
M.E.	2,066	M.E.	2,400-2,500	M.E.	2,800	M.E.	2,545	M.E.	2,545	M.E.	1,910	M.E.	2,429	M.E.	2,675	M.E.	2,429	M.E.	2,000
M.A.	800-1,000	M.A.	1,000-1,200	M.A.	1,000-1,200	M.A.	1,000	M.A.	1,000	M.A.	800-1,000	M.A.	1,000	M.A.	1,000-1,200	M.A.	1,000	M.A.	800-1,000
Spain		Brazil	Chile	Switzerland		Russia		Finland		United States		United States		United States		United States		Belgium	
Serbia		Columbia	Honduras															Ecuador	
		Mexico	China																
		Uruguay																	

cases are interchangeable between two or more countries, but variations do exist between cartridges that carry the same designation. The 7mm Mauser pointed bullet, rimless cartridge, for example, is listed above to several countries. Actually these countries use cartridges which vary in minor detail, but the limits of variation are given and the cases are all very similar to the one shown.

The first cartridge of modern type adopted by the United States was the .30 caliber Krag-Jorgenson also listed as the .30 Army, adopted in 1892. The Springfield Model 1903, a modified Mauser action was adopted in the year it originally used a rimless cartridge with a round nosed bullet and ballistic qualities very similar to the .30 Krag, but the cartridge was redesigned in 1906 to use a pointed bullet of lighter weight and designated as the U. S. .30-06. It was again changed in 1926, when a 172 grain "boat-tail" bullet was adopted and the cartridge listed as the .30 M1. The earlier type bullet has recently been readopted, but improved powder gives a lower chamber pressure than the original light bullet load, which is less taxing to shoot and less erosive to barrels, while giving satisfactory combat ballistics. The latest cartridge is listed as the .30 M2.

Continuing with the present day of submachine guns, the United States is now requesting inventors to develop such a weapon for an experimental cartridge which is about half way between automatic pistol and rifle cartridges in size and type. This cartridge is designated as the united States .30 carbine, M1. It is a straight cased rimless cartridge of .30 caliber and medium power, intended to be used in a full automatic weapon weighing between 5 and 6 lbs.

Military pistol and revolver cartridges have never been considered of great importance in Europe, and while most European pistol cartridges are capable of long range accuracy, they do not compare with the U. S. .45 ACP in knock down quality.

The development of the automatic pistol between 1895 and 1911, and its adoption as the standard sidearm of most governments, have determined the general type of most of the pistol cartridges in present use. They are generally rimless, straight or slightly bottlenecked and use metal jacketed bullets. The majority of the foreign nations use either the Mauser or the Luger automatic pistol, caliber 7.62mm, 7.65mm, or 9mm. These pistols were developed in Germany about 1900 and the ammunition is very powerful although the small bullets lack stopping power in close range combat.

The submachine guns which have played an increased part in recent warfare, notably the Star-

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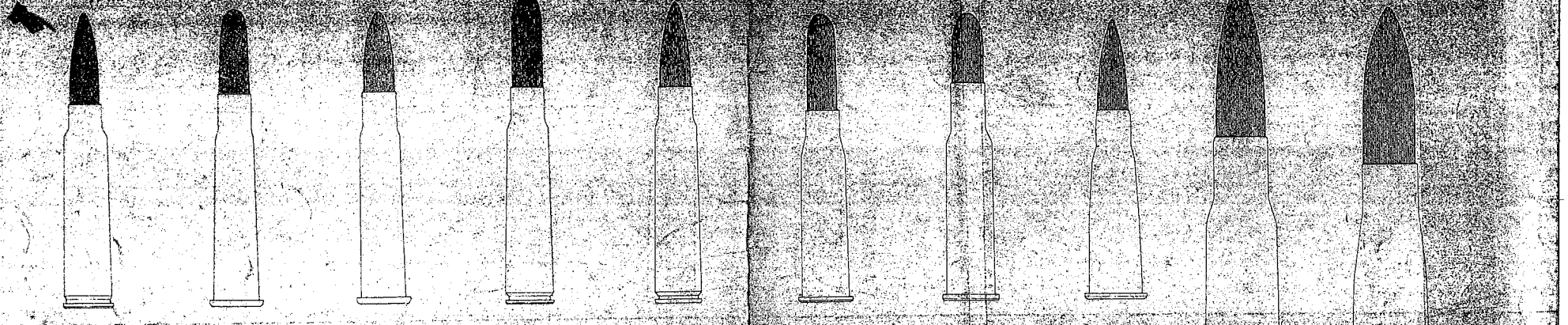

	7.65 MM Mauser	.303 M VI	.303 M VII	7.9 MM Mauser	7.9 MM Mauser	8 MM Mannlicher	8 MM Kr&J Jorgenson	8 MM Lebel	S. 50 M	13 MM
B.D.	R.-C.N.J.-F.B.	B.D.-R.N.-C.N.J.-F.B.	B.D.-P.-C.N.J.-F.B.	B.D.-R.N.-S.J.-P.B.	B.D.-P.-S.J.-H.B.	B.D.-R.N.-S.J.-F.B.	B.D.-P.-C.N.J.-H.B.	B.D.-P.-B.M.-B.T.	B.D.-P.-G.M.J.-B.T.	B.D.-P.-C.J.-F.B.
B.W.	150	B.W. 215	B.W. 174	B.W. 227	B.W. 154	B.W. 244	B.W. 196	B.W. 197.6	B.W. 753	B.W. —
P.W.	—	P.W. 30	P.W. 37.5	P.W. 40.75	P.W. 40.5	P.W. 49.2	P.W. 450	P.W. 45.3	P.W. 240	P.W. —
C.T.	B.N.-R.L.	C.T. B.N.-R.	C.T. B.N.-R.	C.T. B.N.-R.L.	C.T. B.N.-R.	C.T. B.N.-R.	C.T. B.N.-R.	C.T. B.N.-R.	C.T. B.N.-R.L.	C.T. B.N.-R.
T.W.	390	T.W. 425	T.W. 384	T.W. 431	T.W. 369	T.W. —	T.W. 450.6	T.W. N26.2	T.W. 1,876	T.W. 1,811
C.P.	—	C.P. 35,000	C.P. 39,000	C.P. 42,000	C.P. 36,000	C.P. 39,400	C.P. —	C.P. 35,500	C.P. 54,000	C.P. —
M.V.	2,788	M.V. 2,000	M.V. 2,440	M.V. 2,093	M.V. 2,882	M.V. 2,034	M.V. 2,530	M.V. 2,380	M.V. 2,500	M.V. 2,560
M.E.	2,700	M.E. 1,950	M.E. 2,350	M.E. 2,100	M.E. 2,800	M.E. 2,200	M.E. 2,750	M.E. 2,600	M.E. 10,765	M.E. 12,097
M.A.	1,000	M.A. 800-1,000	M.A. 1,000	M.A. 800-1,000	M.A. 1,000	M.A. 800-1,000	M.A. 1,000	M.A. 1,000	M.A. —	M.A. —
	Turkey Argentina Peru	British Empire	British Empire	Germany	Germany Czechoslovakia Poland Belgium	Austria Bulgaria Hungary	Denmark	France	United States	Germany

KEY TO ABBREVIATIONS

B.A. — Bronze Alloy.
B.D. — Bullet Description.
B.N. — Bottle Necked.
B.T. — Boat Tailed.
B.W. — Bullet Weight (in Grains).
C.W. — Copper Jacket.
C.W.J. — Copro Nickel Jacket.
C.P. — Chamber Pressure (in Lbs. per Sq. Inch.)
C.T. — Case Type.
F.B. — Flat Base.
F.N. — Flat Nosed.
G.M.J. — Gilding Metal Jacket.
H.B. — Hollow Base.
L. — Lead.
M.A. — Maximum Accuracy Range (in yards).
M.E. — Muzzle Energy (in foot pounds).
M.V. — Muzzle Velocity (in feet per second).
P. — Pointed.
P.W. — Powder Weight (in Grains)
R. — Rimmed.
R.L. — Rimless.
R.N. — Round Nosed.
S. — Straight.
S.J. — Steel Jacket.
S.R. — Semi-Rimmed.
T.W. — Total Weight of Cartridge (in Grains).

Suomi, Mauser, Bergmann, Schmeisser, etc. Argentina, England uses the largest military revolver cartridges usually chambered for either the Mauser or Luger pistol cartridge now issued, the .455 Webley, and also a new .38 caliber cartridge. The English navy uses the .38 ACP cartridge in the Thompson Submachine Gun.

Exceptions among European sidearms include the 7.65 mm Parabellum — the United States adopted the .45 Colt Automatic pistol in 1911, accepting at the time the .45 ACP cartridge developed for the earlier model Colt Revolver, Auto Pistol M 1905. This cartridge superseded the French 8mm Lebel Revolver cartridge with the .45 ACP in the Thompson Submachine Gun.

med case and metal jacketed bullet, the 9mm Parabellum — the United States adopted the .45 Colt Auto-matic pistol in 1911, accepting at the time the .45 ACP cartridge developed for the earlier model Colt Revolver, Auto Pistol M 1905. This cartridge superseded the .38 and .45 caliber revolver cartridges.

auto pistol used by Denmark and Belgium, the 9mm Steyr auto pistol of Austria, both cartridges — similar to the 9mm Luger. Some of the odd-ball cartridges in use is that of the 7.5 Nagant revolver of Russia. This has a case which encloses the bullet and enters the barrel to make a tight fit when the cartridge is fired.

England uses the largest military revolver cartridges now issued, the .455 Webley, and also a new .38 caliber cartridge. The English navy uses the .38 ACP in the Thompson Submachine Gun.

The United States adopted the .45 Colt Automatic pistol in 1911, accepting at the time the .45 ACP cartridge developed for the earlier model Colt Revolver, Auto Pistol M 1905. This cartridge superseded the .38 and .45 caliber revolver cartridges.

The .45 ACP has been the revolver cartridge for all sidearms since 1911.